

REMARKS

The Office Action dated March 4, 2004, has been received and carefully noted. The amendments made herein and the following remarks are submitted as a full and complete response thereto.

By this amendment claim 9 has been amended. Applicant submits that the amendments made herein are fully supported in the specification and the drawings as originally filed, and therefore no new matter has been added. Accordingly, claims 1, 5 and 9 are pending in the present application and are respectfully submitted for reconsideration.

Claim Objections

Claims 1, 5, and 9 were objected to because of numerous informalities. Claim 9 has been amended to correct the informalities and to more clearly recite the subject matter of the present invention. Accordingly, Applicant submits that the amendments made herein place the application in compliance with U.S. patent practice and request that the objection be withdrawn.

§ 102 Rejection

Claims 5 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Palara (U.S. Patent No. 5,408,124). In making this rejection, the Office Action took the position that Palara discloses all the elements of the claimed invention. Applicant respectfully submits that each of claims 5 and 9 recites subject matter that is neither disclosed nor suggested by the cited prior art.

Claim 9 recites a semiconductor device with a bipolar transistor including a first conductivity type semiconductor layer serving as a collector region, a base region that is

constituted of a second conductivity type region provided in the first conductivity type semiconductor layer, an emitter region that is constituted of a first conductivity type region provided in the base region, and a base contact section that is spaced apart from the emitter region in the base region, electrically connected to a base electrode. The emitter region includes a plurality of stripe regions and each of the stripe regions is formed so that a plurality of portions of the base region are exposed at the central portion of each of the stripe regions. Each of the plurality of portions of the base region is surrounded by the emitter region. An emitter electrode is formed so as to be connected to the stripe regions and to cover the exposed portions of the base region via an insulating film.

Accordingly, at least one of the essential features of the present invention is "wherein said emitter region comprises a plurality of stripe regions and each of said stripe regions is formed so that a plurality of portions of said base region are exposed at the central portion of each of said stripe regions, each of said plurality of portions of said base region is surrounded by said emitter region, and an emitter electrode is formed so as to be connected to said plurality of stripe regions and to cover the exposed portions of said base region via an insulating film." As such, the present invention results in the advantage of having a semiconductor device with a bipolar transistor having a multi-emitter or a multi-base structure that can operate with a large current, a high withstand voltage, high speed switching and an increased safe operation area.

It is respectfully submitted that the prior art fails to disclose or suggest the elements of the Applicants' invention as set forth in claims 1, 5 and 9, and therefore fails to provide the advantages that are provided by the present application.

Applicant respectfully submits that each and every element recited within claim 9 is neither disclosed nor suggested by Palara. In particular, Applicant submits that the semiconductor device as recited in the present application is clearly distinct from that which is illustrated by the combination of the cited prior art. Specifically, it is submitted that the cited prior art fails to disclose or suggest at least an emitter region including a plurality of stripe regions, each formed so that a plurality of portions of the base region are exposed at a center of the emitter region, and each of the plurality of portions of the base region is surrounded by the emitter region. Rather, Palara merely discloses emitter regions 24, two for each emitter finger inside the base region 22 (see Palara, col. 7, line 41; see also Fig. 7), but does not teach or disclose a “each of said plurality of portions of said base region is surrounded by said emitter region” as recited in the present application.

To qualify as prior art under 35 U.S.C. § 102, a single reference must teach and/or suggest every feature of a rejected claim. For the reasons provided above, Applicant respectfully submits that Palara does not teach or suggest each and every feature recited by claim 9. Accordingly, claim 9 is not anticipated, nor rendered obvious in view of, Palara.

As such, Applicant respectfully submits that independent claim 9 is not anticipated within the meaning of 35 U.S.C. § 102, and should be deemed allowable.

Applicant submits that claim 5, in addition to reciting independently patentable subject matter, is dependent on claim 9, and is therefore allowable for at least the same reasons as discussed above.

§ 103 Rejection

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Palara in view of Kim et al. (U.S. Patent No. 5,432,360, hereinafter "Kim"). In making this rejection, the Office Action cited Palara for disclosing substantially all of the claimed elements of the present invention with the exception of showing that the base contact region can be constructed of a repeating structure of alternatively arranged P+ and N+ regions. Kim was cited as allegedly teaching this limitation. Applicant submits that claim 1 recites subject matter neither disclosed nor suggested in any combination of the prior art.

The Office Action takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the repeating structure of Kim into the base contact section of Palara so as to reduce the minority carrier accumulation in the contact region, and obtain a semiconductor device with reduced recovery time. However, as discussed above, Palara fails to disclose or suggest all the features of the presently claimed invention. Kim fails to cure the deficiencies of Palara; therefore, it is submitted that each and every element recited in claim 1 is neither disclosed nor suggested by Palara and/or Kim, taken alone or in combination, for at least the reasons set forth above with respect to claim 9.

Therefore, it is respectfully submitted that neither Palara nor Kim, alone or in combination, discloses or suggests the claimed invention, and Applicants respectfully request that the rejection be withdrawn, and claim 1 be deemed allowable.

Conclusion

In view of the above, Applicant respectfully submits that claims 1, 5, and 9 each recite subject matter that is neither disclosed nor suggested in the cited prior art. Applicant

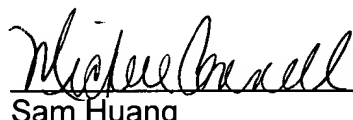
also submits that the subject matter is more than sufficient to render the claims non-obvious to a person of ordinary skill in the art, and therefore respectfully request that claims 1, 5, and 9 be found allowable and that this application be passed to issue.

If for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper has not been timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 107400-00043.**

Respectfully submitted,

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